

Attorney Docket No. 5051.338CTDV.  
Serial No.: 10/748,789  
Filed: December 30, 2003  
Page 8 of 11

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### REMARKS

Claims 63-93 are pending in this application. Claims 73, 90 and 93 are canceled herein without prejudice. Claims 63-65, 69-72, 74-81, 83-85, 89 and 91-92 are amended herein for clarity to more particularly define the invention. The specification is amended herein to update the priority claim as requested by the Examiner. Support for these amendments is found in the language of the original claims and throughout the specification, as set forth below. It is believed that no new matter is added by these amendments and their entry and consideration are respectfully requested. In light of these amendments and the following remarks, applicants respectfully reconsideration of this application and allowance of the pending claims to issue.

#### I. Priority

The Office Action states that the priority claim should be updated to indicate that Application No. 09/021, 286 is now U.S. Patent No. 6,586,661.

The specification is amended herein to reflect the updated status of Application No. 09.021,286 as requested by the Examiner.

#### II. Rejection under 35 U.S.C. 112, first paragraph (written description)

The Office Action states that claims 63-71, 73-74, 76-88, 90-91 and 93 are rejected under 35 U.S.C. § 112, first paragraph, as allegedly lacking written description. Specifically, the Office Action states that applicants describe SEQ ID NO:1 encoding a quinolate phosphoribosyl transferase (QPTase) of SEQ ID NO:2 from *N. tabacum* and QPTase sequences for bacteria *E. coli* and *S. typhimurium*, but that applicants do not describe a representative number of sequences that share all of the conserved regions of SEQ ID NO:1 or SEQ ID NO:2 and that encode a QPTase.

The claims as presented herein recite methods of making a transgenic tobacco plant cell having increased quinolate phosphoribosyl transferase (QPRase) expression, said method

Attorney Docket No. 5051.338CTDV.  
Serial No.: 10/748,789  
Filed: December 30, 2003  
Page 9 of 11

comprising transforming a tobacco plant cell with an exogenous nucleic acid construct, which construct comprises, in the 5' to 3' direction, a promoter operable in a tobacco plant cell and a nucleotide sequence encoding a quinolate phosphoribosyl transferase comprising the amino acid sequence of SEQ ID NO:2, wherein said nucleotide sequence is operably associated with said promoter, to produce transformed tobacco plant cells, said transformed tobacco plant cells having increased expression of QPRTase compared to an untransformed tobacco plant cell.

The present invention further provides transgenic plants of the genus *Nicotiana* having increased quinolate phosphoribosyl transferase (QPRTase) expression relative to a non-transformed control plant, said transgenic plants comprising transgenic plant cells containing: an exogenous nucleic acid construct comprising, in the 5' to 3' direction, a promoter operable in said plant cell and a nucleotide sequence encoding a plant quinolate phosphoribosyl transferase comprising the amino acid sequence of SEQ ID NO:2, said nucleotide sequence operably associated with said promoter; said plant exhibiting increased QPRTase expression compared to a non-transformed control plant.

Further provided herein are methods of producing a tobacco plant having an increased amount of nicotine in leaves of said tobacco plant, said method comprising: growing a tobacco plant, or progeny plants thereof, wherein said plant comprises cells containing a nucleic acid construct comprising a transcriptional initiation region functional in said plant and an exogenous nucleotide sequence operably joined to said transcriptional initiation region, wherein said nucleotide sequence encodes quinolate phosphoribosyl transferase comprising the amino acid sequence of SEQ ID NO:2.

Thus, the methods and plants of the claimed invention recite a quinolate phosphoribosyl transferase comprising the amino acid of SEQ ID NO:2, which is sufficiently described in the specification as filed pursuant to the requirements for written description. The claims further comprise a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:2 and provide

Attorney Docket No. 5051.338CTDV.  
Serial No.: 10/748,789  
Filed: December 30, 2003  
Page 10 of 11

the nucleotide sequence of SEQ ID NO:1 as a representative example of this genus of nucleotide sequences. It would be well recognized by one of skill in the art that a variety of nucleotide sequences would encode the amino acid sequence of SEQ ID NO:2 due to the degeneracy of the genetic code and thus one of skill in the art would reasonably conclude that applicants were in possession of this genus of nucleotide sequences when this application was filed. Thus, applicants believe the specification as filed provides adequate written description of the methods and compositions recited in the pending claims. Thus, this rejection is believed to have been overcome and its withdrawal is respectfully requested.

### **III. Rejection under 35 U.S.C. § 112, first paragraph (enablement)**

The Office Action states that claims 63-93 are rejected under 35 U.S.C. § 112, first paragraph as allegedly lacking enablement. The Examiner provides a Wands factor analysis in support of this rejection.

Applicants respectfully traverse this rejection on the basis that the claims as presented herein are indeed adequately enabled pursuant to 35 U.S.C. § 112, first paragraph. In particular, applicants provide herewith the Declaration under 37 C.F.R. 1.132 of Dr. Takashi Hashimoto, wherein studies are described in which an exogenous nucleotide sequence encoding a quinolate phosphoribosyl transferase enzyme of this invention was introduced into tobacco cells and the leaves of tobacco plants comprising these cells were analyzed for nicotine content. The data described in Dr. Hashimoto's Declaration demonstrate that nicotine production was increased in plants of these studies. Thus, the invention as claimed herein is adequately enabled and applicants believe this rejection has been overcome and respectfully request its withdrawal.

### **IV. Rejection under 35 U.S.C. § 112, second paragraph**

The Office Action states that claims 73, 75, 77-78, 90 and 93 are rejected under 35 U.S.C. § 112, second paragraph as allegedly being indefinite for lack of sufficient antecedent basis.

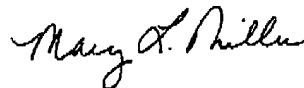
Attorney Docket No. 5051.338CTDV.  
Serial No.: 10/748,789  
Filed: December 30, 2003  
Page 11 of 11

Claims 73, 90 and 93 are canceled herein without prejudice, thereby mooting this rejection as it pertains to these claims. Claims 75 and 77-78 are amended herein to recite a transgenic plant, thereby properly depending from the transgenic plant of claim 74. Thus, this rejection has been overcome and applicants respectfully request its withdrawal.

Having addressed all of the issues raised by the Examiner in the present Office Action, applicants believe the claims as presented herein are in condition for allowance, which action is respectfully requested. The Examiner is encouraged and invited to contact the undersigned directly if such contact will expedite the prosecution of this application to issue.

The Commissioner is authorized to charge Deposit Account No. 50-0220 in the amount of \$1,200.00 as the fee for a three month extension of time. This amount is believed to be correct. However, the Commissioner is authorized to charge any deficiency or credit any overpayment to Deposit Account No. 50-0220.

Respectfully submitted,

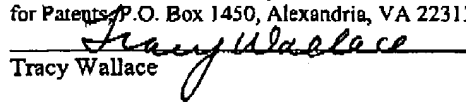


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**CERTIFICATION OF FACSIMILE TRANSMISSION  
UNDER 37 CFR § 1.8**

I hereby certify that this correspondence is being facsimile transmitted to the Patent and Trademark Office via the central facsimile number 571-273-8300 on April 4, 2007 and is addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

  
Tracy Wallace